

Description of a new species of *Cryptocentrus* (Teleostei: Gobiidae) from northern Australia, with comments on the genus

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ABSTRACT

A new species of *Cryptocentrus* is described from northern Australia. The species is distinctive in having an orbital tentacle, sensory papillae on ridged flaps on the head, transverse rows of preopercular mandibular sensory papillae, scales on the cheek, and 11+15 vertebrae. Species of *Cryptocentrus* normally have 10+16 vertebrae. The species occurs on silty sand substrates and is commonly trawled. Discussion on the species and species-groups in the genus *Cryptocentrus* is provided.

KEYWORDS: Gobiidae, Gobiinae, *Cryptocentrus*, new species, northern Australia.

INTRODUCTION

In 1982 the junior author collected a peculiar goby with a distinctive orbital tentacle in shallow depths of 2–12 m. Subsequently specimens of the same species were collected by CSIRO, Northern Territory Fisheries and the Queensland Museum, largely from trawl samples at depths of approximately 20 m. The species is placed here in the genus *Cryptocentrus*, but the species has a number of features not found in other species in the genus. Hoese and Steene (1978) removed several species from the genus and provided information for separation of *Cryptocentrus* and *Amblyeleotris*. Winterbottom (2002) has moved some species to the genus *Myersina*. While some of the species of *Cryptocentrus* are known from coral reefs, many of the species occur on silty sand bottoms in estuaries or off the continental shelf and these species are generally poorly known. We provide additional information on characteristics of the genus and list all described species within the genus based on examination of type and other material (Appendix).

Counts and measurements follow those given by Hubbs and Lagler (1958), except that the last ray in the second dorsal and anal fins is branched to the base and counted as a single ray. Eye length was based on the longest length of the eye, measured with an ocular micrometer to two decimal places. Vertebral counts include the urostyle. The pterygiophore formula follows Birdsong (1975). Institution abbreviations for material examined follow Leviton *et al.* (1985). Proportions are based on specimens 55–65 mm SL. Papilla row terminology follows Hoese (1983).

SYSTEMATICS

Family Gobiidae

Subfamily Gobiinae

Genus *Cryptocentrus* Valenciennes

Cryptocentrus Valenciennes, 1837: 111 (*Gobius cryptocentrus* Valenciennes, 1837: 111 = *Cryptocentrus meleagris* Ehrenberg, in Valenciennes, 1837: 111, Massuah, Red Sea, by tautonymy).

Alepidogobius Bleeker, 1874: 296, 310 (*Gobiosoma fasciatum* Playfair, 1866: 72, Zanzibar, by original designation).

Mars Jordan and Seale, 1906: 408 (*M. strigilliceus* Jordan and Seale, 1906: 408, fig. 95, Samoa, by original designation).

Obtortiophagus Whitley, 1933: 90 (*O. koumansii* Whitley, 1933: 91, pl. 11, fig. 3, Hayman Island, Queensland, Australia, by original designation).

Smilogobius Herre, 1934b: 88 (*S. inexplicatus* Herre, 1934b: 88, Sitankai Reef, Philippines, by original designation).

Batman Whitley, 1956: 36 (*B. insignitus* Whitley, 1956: 36, fig. 2, Darwin, Northern Territory, Australia, by original designation).

Iotogobius Smith, 1959: 195 (*I. malindiensis* Smith, 1959: 195, fig. 6, Malindi, Kenya, by original designation).

The genus is characterised by a number of distinctive features. Head compressed, with eyes placed high on sides of head, interorbital much narrower than eye. Head pores present. Pelvic fins connected, forming a cup-shaped disc. Gill opening extends to below posterior preopercular margin, or well before margin

in a few species. Scales typically cycloid, if ctenoid then second dorsal and anal fin rays 1,9–10 and gill opening narrow. Transverse papilla pattern. Two parallel papilla rows on chin. Lower horizontal papilla row extends backward from second vertical row. Dorsal rays 1,9–12. Anal rays 1,9–11. Skull distinctly compressed. Sphenotic flange displaced backward from orbit. No preopercular flange to symplectic. First dorsal fin origin behind pelvic fin insertion. Gill rakers unossified on inner face of lower limb of first gill arch and outer face of lower limb of second arch. Mouth long, usually reaching to or beyond posterior edge of eye (13–17% SL). Predorsal length 31–39% SL. Preanal length 60–64% SL.

Currently no primitive sister group has been proposed for this genus. In relation to the more primitive gobioids (Eleotridae and Gobionellinae), it is likely that the lack of ossification of the gill rakers, placement of the eyes high on the head and the large mouth represent specialisations for the genus.

Akihito and Meguro (1983) suggested a relationship with *Myersina* and *Stonogobiops* based on the reduction in ossification of the gill arches. They agreed with Hoese and Steene (1978) that *Amblyeleotris*, although superficially similar to *Cryptocentrus*, was not closely related. *Amblyeleotris* differs in having the gill opening extending forward at least to below the middle of the preoperculum; posterior scales ctenoid; an enlarged papilla set in a pit at each side of chin; the lower horizontal papilla row on the cheek extending backward from fourth or fifth vertical row; second dorsal and anal rays 1, 12–19; skull not distinctly compressed; the sphenotic flange forming posterior margin of orbit; the preopercular flange connecting to symplectic; first dorsal fin origin typically over or in front of pelvic fin origin; mouth short, reaching to under mid-eye (9–13% SL); predorsal length 24–29% SL; and preanal length 53–59% SL. Species of *Amblyeleotris* are associated with alpheid shrimps on or adjacent to coral reefs of the Indo-west Pacific. Species of *Cryptocentrus* are also known to be associated with alpheid shrimps (Karplus 1981; Karplus *et al.* 1981; Karplus 1987). While some species of *Cryptocentrus* occur in association with coral reefs, over half the known species are typically found over silt or mud bottoms in mangroves and bays. Species from these environments are associated with alpheid shrimps. Several species are known only from trawled specimens and it is not known whether these occur with alpheids in burrows.

Winterbottom (2002) removed *Gobius filifer* Valenciennes, 1837, *Cryptocentrus yangii* Chen, 1960, *Cryptocentrus crocatus* Wongratana, 1975 and *Cryptocentrus pretoriusi* Smith, 1958, from *Cryptocentrus*, placing them in *Myersina*. *Gobius knutteli* Bleeker, 1858, a junior synonym of *Myersina filifer* (Valenciennes, 1837) is the type of the genus *Paragobius*

Bleeker, 1873. Because the name has not been used in over 70 years the genus is provisionally regarded as a synonym of *Myersina*.

Some of the characteristics listed above are variable in *Cryptocentrus*. For example, only three species are known to have ctenoid scales on the body as adults, but some other species, such as *C. leptocephalus* have ctenoid scales posteriorly on the body in juveniles.

Tentatively a number of genera are regarded here as synonyms of *Cryptocentrus*. Further studies may show that the genus, as recognised here, is not monophyletic. A number of distinctive species complexes, which differ from more typical members of the genus, are recognisable:

- The *Cryptocentrus cryptocentrus* complex contains two species (*Cryptocentrus cryptocentrus* and *C. inexplicatus*), which are distinctive in having a bony ventral projection from the operculum. The generic name *Cryptocentrus* is available for this complex if it proves to be distinctive.
- The *C. strigilliceps* complex (*C. strigilliceps*, *C. caeruleonaculatus* and one undescribed species) is distinctive in having transverse rows of mandibular papillae and ctenoid scales on the body. Ctenoid scales occur in some other species, such as *C. leptocephalus*, only in young stages. The generic name *Mars* is available for this complex.
- The *C. bulbiceps* complex (*C. bulbiceps*, *C. diproctotaenia*, *C. leouis* and *C. cyanotaenia*) is distinctive in having a wedge-shaped patch of predorsal scales and the head with several oblique thin lines sloping backward and upward. There is apparently considerable sexual dimorphism and names here are very tentative. If distinctive, no generic name is available for this group.
- The *C. pavoninoides* complex (*C. pavoninoides*, *C. iusignitus*, *C. cebuauus*, *C. pretiosus* and at least one undescribed species) is distinctive in having 8–10 short rows of papillae radiating from the eye along the ventral and posteroventral margins of the eye onto the cheek. These species are relatively large sized (adults greater than 100 mm SL) and are normally trawled. Satapoomin and Winterbottom (2002) have described considerable sexual dimorphism in *C. pavoninoides*. Because of the species' rarity and complex variation, the group is in need of revision. The generic name *Batuuan* is available for this group.
- The *C. leucostictus* complex (*C. leucostictus*, *C. maudae*, *C. liolepis*, *C. ualiudiensis*, *C. niveatus*, *C. albidorsus* and *C. nigroocellatus*) is distinctive in having a very slender body, with a white stripe on the midline of the head, often extending onto the body. The species inhabit shallow reef flats. The species list recognised here is tentative, with further studies needed to clarify the taxonomy of the group. The generic name *lotogobius* is available for this group.

Other valid species in the genus include: *Cryptocentrus caeruleopunctatus* (Rüppell, 1830), *Cryptocentrus cinctus* (Herre, 1936), *Cryptocentrus fasciatus* (Playfair, 1866), *Cryptocentrus geniornatus* Herre, 1935, *Cryptocentrus leptocephalus* Bleeker, 1876, *Cryptocentrus lutheri* Klausewitz, 1960, *Cryptocentrus shigensis* Kuroda, 1956, and *Cryptocentrus yatsui* Tomiyama, 1936. This group includes the nominal genera *Alepidogobius* and *Smilogobius*.

A number of species have been included in *Cryptocentrus* which have a longitudinal papilla pattern and it is likely that these are not closely related to *Cryptocentrus* (see Appendix). These species also have the chin papillae arranged in a transverse line at the end of the chin, similar to the pattern found in *Touiyamichthys* and *Flabelligobius*. These nominal species include: *Gobius russus* Cantor, 1849, *Gobius polypluthalmus* Bleeker, 1853, *Gobius voigtii* Bleeker, 1854, *Gobius xanthetaenia* Bleeker, 1855, *Cryptocentrus callopterus* Smith, 1945, *Cryptocentrus cingulatus* Herre, 1934a and *Gobius papuanus* Peters, 1876. The status of *Cryptocentrus rubropunctatus* Sewell, 1914, *Cryptocentrus vagus* Herre, 1927, and *Cryptocentrus venustus* Seale, 1914, currently are uncertain. The original description of *Cryptocentrus cephalotaeniis* Ni, 1989, makes it clear that it is a species of *Amblyeleotris* close to *A. gymnocephala* (Bleeker, 1853). No species of *Cryptocentrus* has such a high second dorsal ray count (1,18–19). Other species of *Amblyeleotris* previously included in *Cryptocentrus* are listed in Hoese and Steene (1978).

Cryptocentrus tentaculatus new species

(Figs 1, 2)

Type material. HOLOTYPE – NTM S.14637-045, 1(37 mm SL, male), reef on south side Field Island, Northern Territory. R. Williams and party, 27 May, 1998. PARATYPES – Queensland: NTM S.12777-001, 1(55), Weipa area, S. Blaber, 1987; NTM S.13277-013, 1(43), east of Cape York (11°21.4'S, 142° 58.2'E), R. Williams, 1 December 1991; QML26061, 1(62), Torres Strait, Northern Territory: AMS I.24676-006, 12(15–37), East Arm boat ramp, Darwin, D. Hoese and party, 29 August 1984; NTM S.10429-001, 4(16–57); Channel Island, Darwin Harbour, H. Larson and party, 24 May 1982; NTM S.10718-046, 23(24–52), East Arm, Darwin, H. Larson and party, 31 December 1982; NTM S.10797-033, 1(24), Apsley Strait, Bathurst Island, 0–2 m, H. K. Larson and party, 17 November 1982; NTM S.11803-001, 1(65), south of South Point, Grootte Eylandt (14°20'S, 136°15'E, 19 m, Northern Territory Fisheries, 27 February 1984; NTM S.11804-001, 3(60–62), Grootte Eylandt, 19 m, Northern Territory Fisheries, 29 June 1984; NTM S.14637-043, 2(10–45), reef on south side Field Island, R. Williams and party, 27 May 1998.

Additional material examined (non-type material). NTM S.10715-002, 1(16), off East Point, Darwin, 10–12 m, H. Larson and J. Randall, 23 November 1982.

Diagnosis. Mental frenum absent. Mouth large; reaching to point below posterior quarter of eye; jaws forming angle of 45–55° with body axis; upper margin of upper jaw in line with point just below eye. Cheeks slightly bulbous. Interorbital very narrow, less than pupil diameter. Gill opening reaching to below point just behind posterior preopercular margin. Head papillae on distinct ridges. Scales entirely cycloid. Predorsal area fully scaled to just behind eyes. Cheek with scales extending forward to below eye; operculum covered with small scales. Pectoral fin base and pelvic area fully scaled. Belly fully covered with cycloid scales. First dorsal fin low, with rounded margin, third and fourth spines longest and not filamentous; spines 3 and 4 extending beyond other spines when fin depressed. First dorsal fin with one or more black stripes. Anal fin with three oblique black bars. Pelvic fin small; reaching to just beyond mid-belly in adult and to near anus in juvenile. Second dorsal fin rays 1,11–12; anal fin rays usually 1,10; pectoral fin rays 15–18; longitudinal scale count 39–46; predorsal scale count 19–25; transverse scale count (TRB) 18–23; vertebrae 11+15.

Description. Based on 50 specimens, 24–65 mm SL. Counts of holotype indicated by asterisk. Numbers in parentheses after counts indicate the number of specimens with that count.

First dorsal spines VI(33)*; second dorsal rays 1,11(21), 1,12(11), 1,13(1)*; anal rays 1,9(15), 1,10 (16)*; pectoral rays 14(1), 15(1), 16(7), 17(23)*, 18(2); longitudinal scale count 39(1), 40(1)*, 42(1), 43(1), 44(3)*, 45(3), 46(3), 47(1), 48(2), 49(2), 50(2), 54(1), 56(1), 58(2); predorsal scale count 19(1), 22(3), 23(4), 24(7)*, 25(8), 26(1), 27(1); transverse scale count (TRB) 18(2), 19(6)*, 20(3), 21(2), 22(5), 23(2), 24(1); gill rakers on outer face of first arch 1+1+7(1), 3+1+7(3), 3+1+8(1); gill rakers on outer face of second arch 1+0+9(2), 2+0+7(1), 2+0+9(1), 3+0+7(1), 3+0+8(2), 3+1+9(2); segmented caudal rays 8/8 (2), 9/8(27)*; branched caudal rays 7/6(7), 7/7(14)*, 8/7(6), 8/8(1); vertebrae 11+15(5).

Head slightly compressed, 28.7–34.3% SL. Head depth at preopercular margin 20.1–21.3% SL. Head width at preopercular margin 19.1–25.2% SL. Snout rounded in dorsal view; steeply oblique (slightly convex) in side view; 6.9–10.0% SL. Eye small and elevated, with shallow groove behind, about equal to snout in juveniles and less than snout in adults, 4.3–6.5% SL. Anterior nostril at end of short tube, at upper margin of upper lip. Posterior nostril a large pore about 1.5 nostril diameters behind anterior nostril, slightly closer to eye than upper lip. Preoperculum moderate, distance from end of eye to upper posterior

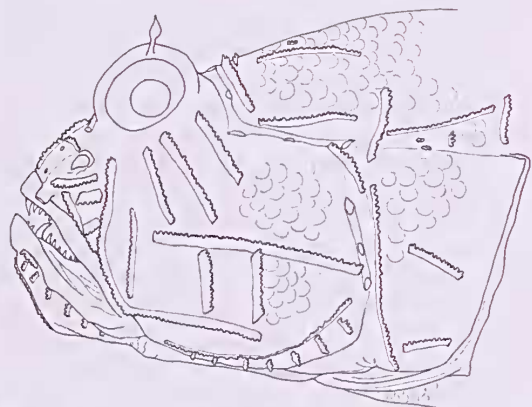


Fig. 1. Sensory papillae on head of *Cryptocentrus tentaculatus* n. sp.; composite drawing based on several specimens.

preopercular subequal to distance from snout to posterior end of pupil. Postorbital long, slightly shorter than distance from tip of snout to posterior preopercular margin. Body robust, depth at anal origin 21.7–23.2% SL. Upper jaw 11.5–12.9% SL. Teeth conical. Teeth in upper jaw: outer row of teeth curved, enlarged and wide-set, a larger tooth at angle of jaw; five to six rows of smaller, depressible teeth anteriorly, tapering to two to three rows posteriorly; posteriormost rows pointing inward into mouth. Teeth in lower jaw: teeth in outer row curved, conical, wide-set, covering anterior end of dentary only; five to six inner rows of smaller conical teeth anteriorly and two to three rows posteriorly, innermost row of teeth depressible and pointing posteriorly into mouth anteriorly in jaw. Tongue tip truncate to slightly rounded. Gill rakers on outer face of first arch slender, denticulate on posterior margin, rakers shorter than filament length. Rakers on inner face of first arch and other arches short and denticulate at distal tip. Body covered with cycloid scales. Depressed length of first dorsal fin 19.2–22.0% SL, origin above a point well behind pelvic fin insertion. Second dorsal fin base 28.9–32.0% SL. Anal fin base 19.8–21.1% SL. Pectoral fin with pointed margin,

reaching to beyond pelvic fin tip, to just before anus in adult, and to segmented anal fin rays 3–4 in juveniles, 23.2–27.8% SL. Pelvic disc small in adult, reaching about half way to anal fin origin, larger in juvenile, reaching just short of anus, pelvic length 21.3–26.3% SL in adult. Caudal fin with acute posterior margin, central rays longest; length 24.0–32.5% SL.

Head pores. Posterior nasal pore well above nostril; median anterior interorbital pore just before eyes; median posterior interorbital pore behind eyes; postorbital pore behind upper quarter of eye; infraorbital pore below postorbital pore, behind middle of eye; lateral canal pore above preoperculum; terminal lateral canal pore above posterior preopercular margin; no short tube or pores above operculum; three preopercular pores, upper in line with a point just below upper anterior margin of upper lip; middle pore midway between upper and lower pores.

Papillae. Head papilla pattern transverse (Fig. 1). Cheek with five VT lines; first from near interior margin of eye to near posterior end of jaws; second incomplete and extending upward from posterior end of jaws, not meeting eye; third interrupted by upper LT line; fourth slightly oblique dorsally, upper part oblique and not reaching upper LT line; fifth a short oblique line before infraorbital pore; not developed below upper LT line. Upper LT and lower LT lines reaching to near posterior preopercular margin. An oblique line extending above upper jaw toward anterior nostril. A short line from lateral margin of anterior nasal tube to near posterior nostril. Preopercular-mandibular series with outer LT line interrupted just behind upper jaw; inner line composed of multiple rows arranged in a TT (transverse pattern). A transverse (TT) line behind each eye. A longitudinal (LT) line from behind each eye. An LT line on nape anteriolaterally from first dorsal origin. Chin papillae arranged in two posteriorly converging LT lines. A single curved papilla line anteriorly on most body scales (often obscure dorsally and posteriorly).

Coloration in alcohol. Head and body dark brown, with faint traces of darker brown bands and scattered brown mottling in adults. Specimens below 56 mm SL:



Fig. 2. Holotype of *Cryptocentrus tentaculatus* n. sp., NTM S.14637-045, 37 mm SL, Field Island, NT. Scale bar = 10 mm. Photograph by Suzanne Horner.

head and body light brown; snout dark brown, with scattered white mottling; a vertical brown bar, bordered with white, extending ventrally from eye; head with scattered black spots along tracks of papilla rows resulting in scattered dark brown spots on head; ventral surface of head with three brown transverse bars, first on chin near middle of jaws, second at posterior end of jaws and third extending obliquely from angle of preoperculum onto branchiostegal membranes; isthmus largely brown, white before pelvic insertion; nape with oblique dark brown bar extending from above operculum backward and upward above pectoral base; body with a series of dark brown more-or-less vertical bands, first before first dorsal origin, second below first dorsal fin, third below anterior part of second dorsal fin, fourth below middle of second dorsal fin, fifth just behind posterior end of first dorsal fin and sixth at posterior end of caudal peduncle, bands sometimes divided by thin white vertical line into two sections. Dorsal fins dark grey with scattered black spots. Anal fin with alternating white and black areas, giving appearance of oblique bands; white area at origin, followed by black, then an oblique white area, then black, with a curved white area from posterior base of fin, extending ventrally and forward, distal tips of last few rays black. Pectoral fin with four to five wavy dark brown bands. Pelvic disc largely black in adult, light grey in juveniles. Caudal fin with three to four wavy dark brown to black bands.

Coloration of freshly collected material (NTM S.11804-001). Large adults rusty brown colour; pale bands on caudal and anal fin whitish orange. Smaller specimens with reddish-brown vertical bands anteriorly on body, interspaces whitish; head with white mottling; posterior half of body reddish brown; light bands on caudal and pelvic fins white. Otherwise coloration as in preserved material.

Distribution. Known only from northern Australia from Bathurst Island, Northern Territory, to east of Cape York, Queensland, from 2–20 m. Specimens have been trawled from soft bottom habitats, or obtained by rotenone on intertidal/rocky reefs, where they have been observed coming out of burrows. However, it is not known if the alpheid shrimp obtained at the same time were commensal with the new species, as other *Cryptocentrus* species were also present.

Comparisons. *Cryptocentrus tentaculatus* is unique within *Cryptocentrus* in the combination of having an orbital tentacle, scales on the cheek, papillae on raised flaps and transverse rows of preopercular mandibular papillae. The oblique dark bars on the anal fin are characteristic of several species, including *C. strigilliceps*, *C. caeruleomaculatus*, *C. nigrocellatus*, *C. leucostictus*, *C. niveatus*, *C. maudae* and *C. malindiensis*. Multiple preopercular papilla rows are found in *C. cryptocentrus* and *C. caeruleomaculatus*. The papillae on flaps, eye

tentacle and cheek scales are unknown in other species of the genus. The flaps on the head are similar in some general appearance to that found in the genus *Callogobius*. However, this species is clearly not a *Callogobius*, as the uppermost longitudinal papillae row on the cheek ends at the third transverse row (versus the second row in *Callogobius*), the jaws end under posterior quarter of eye (in *Callogobius* the jaws end before or at the anterior margin of the eye), the gill opening extends forward to below the posterior edge of the preopercle (in *Callogobius* the gill opening is narrow, ending below posterior edge of the opercle) and the posterior nostril has a low rim (*Callogobius* has each nostril at the end of a distinct tube).

Remarks. The scale coverage is less extensive in juveniles. The operculum and preoperculum is naked and the prepelvic area partly scaled in a 24 mm SL specimen. In a smaller 16 mm specimen the predorsal area is also naked. Scales are eyeloid in juveniles (10–24 mm SL).

Etymology. From the Latin *tentaculatum* = tentacle, referring to the distinctive tentacle on the dorsal surface of the eye.

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APPENDIX. Comparative material examined. Institutional abbreviations follow Leviton *et al.* (1985).

- Cryptocentrus albidorsus* Yanagisawa, 1978: AMS I.21933-002, 6 (25–36), Philippines.
- Cryptocentrus bulbiceps* (Whitley, 1953): holotype of *Cryptocentroides bulbiceps*, QM I.107051, 1(91), Palm Island, Queensland.
- Cryptocentrus caeruleomaculatus* (Herre, 1933a): holotype of *Mars caeruleomaculatus*, CAS-SU 25502; holotype of *Ctenogobius culionensis* (Herre, 1934b), CAS-SU 26387, 1(38); AMS I.21260-004, 4 (39–41), Queensland, Australia.
- Cryptocentrus caeruleopunctatus* Rüppell, 1830: lectotype of *Gobius caeruleopunctatus*, SMF 1936; syntypes of *Gobius pavoninus* Valenciennes, 1837), MNHN 5381, 3(82–92), Red Sea.
- Cryptocentrus cebuanus* Herre, 1927: AMS I.30060-001, 1 (105), Western Australia.
- Cryptocentrus cinctus* (Herre 1936): holotype of *Smilogobius cinctus*, CAS-SU 29103, 1(59); AMS I.19465-029, 10 (23–48), Queensland: WAM P.30398-002, 4(30–47), Sabah.
- Cryptocentrus cyanotaenia* (Bleeker, 1853): holotype of *Gobius cyanotaenia*, RMNH 4662, 1(86), Batavia.
- Cryptocentrus cryptocentrus* (Valenciennes, 1837): holotype of *Gobius cryptocentrus*, MNHN A.1166, 1(81); syntypes of *Cryptocentrus octofasciatus* Regan, 1908, BMNH 1908.3.23.231, 1(55) and BMNH 1908.2.23.232-234, 3(38–53); AMS I.19403-001, 2 (27–50), South Africa.
- Cryptocentrus diproctotacua* Bleeker, 1876: syntypes RMNH 4514, 2(113–113), Amboina.
- Cryptocentrus fasciatus* Playfair in Playfair and Günther, 1866): holotype of *Gobiosoma fasciatum*, BMNH 1867.3.7.495, 1(94); AMS I.19450035, 6 (12–29), Queensland; NTM S.10808-011, 2(82–91), Western Australia.
- Cryptocentrus geniornatus* Herre, 1935: holotype FMNH 17364, 1(39), Waigiou Island.
- Cryptocentrus iuexplicatus* (Herre, 1934b): holotype of *Smilogobius iuexplicatus*, CAS 125500, 1(56); CAS GVF 139, 2(49–50), Palau.
- Cryptocentrus insignitus* (Whitley, 1956): holotype of *Batman insignitus*, AMS IA.4299, 1(36). NTM S.10608-003, 2(48–52), Northern Territory, Australia.
- Cryptocentrus leonis* Smith, 1931: holotype USNM 90322, 1(102), Chantabun River estuary.
- Cryptocentrus leptcephalus* Bleeker, 1876: holotype RMNH 4665, 1(62); holotype of *Cryptocentrus cheni* Herre, 1933b, CAS-SU 25494; holotype of *Smilogobius obliquus* Herre, 1934b, CAS-SU 25501, 1(51); holotype of *Smilogobius singaporensis* Herre, 1936, CAS-SU 29807, 1(72); AMS I.24678-018, 1 (55), Northern Territory, Australia; WAM P.30398-001, 2(50–62), Sabah.
- Cryptocentrus leucostictus* (Günther, 1872): holotype of *Gobius leucostictus*, BMNH 1871.9.13.174, 1(52); holotype of *Heteroleotris phacna* Jordan and Seale, 1906), USNM 51786, 1(14); AMS I.21260-005, 5 (26–77), Queensland.
- Cryptocentrus lutheri* Klauswitz, 1960: holotype SMF 4773, 1(59); AMS I.21883-001, 1 (52), Gulf of Aqaba.
- Cryptocentrus malindiensis* (Smith, 1959): holotype of *Iotogobius malindiensis*, RUSI 203, 1(21), Malindi, Kenya.
- Cryptocentrus maudae* Fowler, 1937: holotype ANSP 68253, 1(106); AMS I.21933-003, 3 (33–51), Philippines.
- Cryptocentrus nigroocellatus* Yanagisawa, 1978: AMS I.21936002, 2 (54–57), Philippines; AMS I.23499-006, 1 (41), Japan; WAM P.30403-024, 1(49), Sabah.
- Cryptocentrus niveatus* Valenciennes, 1837: holotype of *Gobius niveatus* MNHN A.1157, 1(80), Java.
- Cryptocentrus pavononoides* (Bleeker, 1849): holotype of *Gobius pavoninoides* RMNH 4473, 1(109), Sumanap, Madura.
- Cryptocentrus pretiosus* (Rendahl, 1924): syntypes of *Gobius pretiosus* NHRM 1874809-4422, 2(120–125), Hong Kong.
- Cryptocentrus scrius* Herre, 1932: holotype CAS-SU 25725, Canton, China.
- Cryptocentrus shigensis* Kuroda, 1956: holotype Kuroda Coll. No. 1076, Shige, Shizuoka.
- Cryptocentrus strigilliceps* (Jordan and Seale, 1906): holotype of *Mars strigilliceps* USNM 51778, 1(39); holotype of *Obortiothagus koumans* Whitley, 1933, AMS IA.2027, 1(50); holotype of *Callogobius ocellatus* Herre, 1935, FMNH 17363, 1(37.5); AMS I.19456-102, 3 (16–38), Queensland.
- Cryptocentrus wehrlei* Fowler, 1937: holotype ANSP 68254, 1(68), Bangkok.
- Cryptocentrus yatsui* Tomiyama, 1936: holotype ZUMT 25229, 1(68), Tainan, Formosa.

Other Material Examined.

- Gobius russus*, syntypes, BMNH 1860.3.19.5731, 2(80–80 half skins).
- Gobius polyophthalmus*, holotype, RMNH 6183.
- Gobius voigtii*, holotype, RMNH 6183, 1(97).
- Gobius xanthotaenia*, holotype, RMNH 6183, 1(102).
- Cryptocentrus callopterus*, holotype, USNM 119572, 1(70).
- Cryptocentrus cingulatus*, holotype, CAS-SU 39054.
- Gobius papuanus*, holotype, ZMB 9768, 1(40).
- Myersina pretoriusi*, holotype, RUSI 183, 1(60).
- Myersina filifer*, holotype of *Gobius filifer*, MNHN 994, 1(103); holotype of *Gobius kuutteli*, RMNH 4507, 1(90).